



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,583	06/12/2001	Robert Wipfel	26530.60	6234
27683	7590	11/15/2004	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			GEREZGHER, YEMANE M	
			ART UNIT	PAPER NUMBER
			2144	
DATE MAILED: 11/15/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/879,583	WIPFEL ET AL. 	
	<b>Examiner</b>	<b>Art Unit</b>	
	Yemane M Gerezgiher	2144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 August 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 12 June 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/20/2004.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

1. Amendment received on 08/20/2004 has been entered. Claims 1-24 remain pending in this application.

**Claim Rejections - 35 USC § 112**

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The inventive entity recite(s) "ordering a first node not on the list of surviving nodes to halt execution by writing, by a second node on the list of surviving nodes, a termination message into the slot associated with the first node." See Page 2, Claim 1, Claim Lines 15-17. However, the amended limitation described above raises new matter, which is/was not supported by the original specification.

**Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Mackenzie et al (U.S. Patent Number 6,363,495) hereinafter referred to as Mackenzie.

As per claims 1, 10 and 18, Mackenzie discloses a method and apparatus for detecting a partition (split-brain) and resolving the partition condition in a clustered computer system. See ABSTRACT, Figures 3-14C, Column 4, Line 40 through Column 5, Line 65. Mackenzie taught creating a specific data structure on disk blocks in a shared memory where the member nodes could access a specific slot on the disk namely CIB (cluster information block, CNM (cluster node map) and NIF (node information block) "accessible by the cluster of computers";

Art Unit: 2144

"dividing the memory unit into a plurality of slots, each slot associated with a plurality of nodes within the cluster of computers, wherein each slot includes at least a heartbeat field indicating that cluster software is loaded on the node and a node state field indicating a current state of the node." (See Column 8, Line 28 through Column 9, Line 44, where the member nodes in the cluster write a generation number and a node list in the specified slots of the data structure and a heartbeat field indicating the status of the node in the clustered computer system showing a change of membership in the clustered computer system. See Figures 13A-14C, Column 10, Line 57 through Column 11, Line 31).

Mackenzie disclosed recording in the plurality of slots, a generation number and a list of known nodes by each one of the plurality of nodes. See Figures 5A-5D, 13A -14C and Column 9, Lines 19-65 (Mackenzie clearly disclosed a generation number and a list of known member nodes written by the participating nodes that are in the clustered system) "wherein an identifier is written in the list for each node that is known to a writing node and wherein the generation number and the list of known nodes is recorded when a change of membership occurs in the cluster of computers." See Figures 13A, 13B and Column 17, Lines 30-56 (Mackenzie taught an identifier written identifying every single writing node and recording generation number and list of known

member nods when a membership change occurs. For example, pointing to Figures 13A and 13B, in order for a node to join the clustered computer system with nodes number "node 0 (1302) and node 1(1304)", nodes 0 and 1 updated or re-wrote the new generation number and similarly the joining node numbered "node 2(1306)" wrote the new generation number and a list of the known nodes in the clustered computer system). Mackenzie disclosed comparing each slot of the plurality of slots to ensure the generation number and the list of known nodes matches in each slot of the plurality of slots. See Figure 8, Column 19, Lines 24-67 and Column 10, Lines 57-67 (Mackenzie taught reading or comparing each slots of the data structures containing therein a generation number and a list of known nodes matching with all slots having there in a status information of each and every node in the clustered system) and creating a list of surviving nodes by listing a first set of nodes determined by comparing each slot of the plurality of slots; See Figures 8-11, Column 12, Lines 38-67 (Mackenzie disclosed creating a list of surviving nodes by comparing each NIB's of all the nodes with original nodes list) and shutting down each node not on the list of surviving nodes by requiring each node not on the list of surviving nodes to write a special message in a respective slot for that node and then shut down immediately. See Column 19, Lines 38-42 (Mackenzie

disclosed shutting down a node that is determined to be out of the list analyzed to be member nodes in a partition of a clustered computer system).

As per claims 2 and 11, wherein the creating the list of surviving nodes includes listing a first set of nodes determined by comparing each slot of the plurality of slots was disclosed by Mackenzie. See Column 12, Lines 43-55, Original list of live nodes was created based on node status information stored in each slot or block of the memory unit where a member node's status information was recorded therein (See Column 9, Lines 22-32).

As per claims 4, 13 and 20, Mackenzie disclosed finding a list with a lowest node rank to create the list of surviving nodes and shutting down each node not on the list with the lowest node rank. See Column 13, Lines 2-11, Figure 11 and Column 16, Lines 29-45 (checking or finding a list having the lowest numbered node and returning true (generating a surviving or live nodes) for the nodes determined to be in the lowest ranked nodes and returning false (shutting down) for the nodes determined not to be in the list of the lowest ranked nodes.

As per claims 5, 14 and 21, Mackenzie taught finding a list with a largest node to create the list of surviving nodes and shutting down each node not on the list with the largest node.

See Figure 9B, Step 940, Column 19, Lines 15-17 (Mackenzie disclosed creating surviving nodes by selecting a list with largest nodes and shutting down nodes that were not on the list).

As per claims 3, 6, 12, 15 and 22, Mackenzie disclosed *finding a list with a maximum number of nodes including a master node to create the list of surviving nodes and shutting down each node not on the list with the maximum number of nodes.* See Column Figure 9B, Step 940, Column 12, Lines 44-62 (Mackenzie disclosed finding an original list within the maximum number of nodes that were fully functioning and creating a set of live nodes and terminating nodes that were not with in the maximum number of nodes list).

As per claims 8, 16 and 23, Mackenzie disclosed *sending the list of surviving nodes to the each node on the list of surviving nodes along with a new generation number.* (See Column 12, Lines 38-62, Column 9, Lines 54-64 and Column 10, Lines 57-67, where each member node in the clustered computer system was presented with a new list of live members (active member nodes)).

As per claims 9, 17 and 24, Mackenzie disclosed *requiring each node not on the list of surviving nodes to re-register with the cluster of computers.* See Column 17, Lines 45-56 and Column 9, Lines 54-60 (a cluster state map containing information data

of the cluster node membership identifying nodes that leave and join the clustered computer system by updating/re-registering status of the node in the cluster state map).

### **Response to Arguments**

6. Applicant's arguments filed 08/20/2004 have been fully considered but they are not persuasive.

7. The inventive entity argues that Mackenzie failed to teach the following limitations.

8. As per Claims 1-9, the inventive entity argues that the teaching of MacKenzie failed to teach the limitation as amended ("recites in part ordering a first node not on the list of surviving nodes to halt execution by writing, by a second node on the list of surviving nodes, a termination message into the slot associated with the first node.")

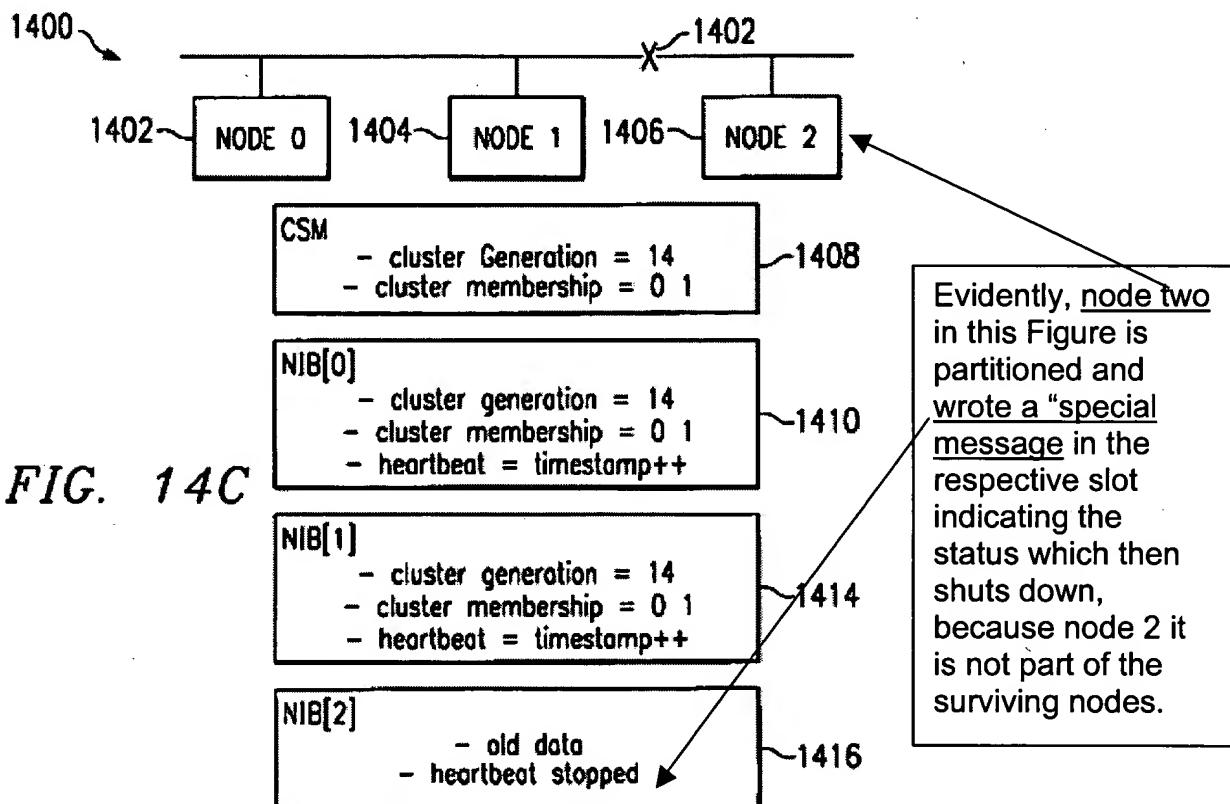
However, the applicant's amendment made to the claim has not met with the written requirement of the specification so to support the claimed limitation described above. In fact, the inventive entity contradicts with the disclosed specification of the invention. The inventive entity recites, "Nodes are also allowed to read/write their own slot but can only read slots allocated to other nodes". See Specification Page 13, Lines 17-18. However, there is no support for the newly introduced

limitation claiming a second node in the surviving group writing a termination message on the slot associated with the first node.

9. The inventive entity also argues that MacKenzie did not teach "dividing a scratch into plurality of slots, each slot associated with one of the plurality of the nodes within the cluster of computers, wherein each slot includes at least a heartbeat field indicating that cluster software is loaded on the node and a node state field indicating a current state of the node." See Remarks Page 9, Lines 6-13.

10. As per claim 18-24, the inventive entity argues that MacKenzie failed to teach the limitation ("shutting down each node not on the list of surviving nodes by requiring each node not on the list of surviving nodes to write a special message in a respective slot for that node and then shut down immediately."). However, the argument is not persuasive, because MacKenzie clearly anticipated the claimed limitation. MacKenzie disclosed shutting down nodes that are not in the surviving nodes where each node was required to write a status change in the respective slot (data structure) and terminate. See Figure 14C below, Column 19, Lines 24-27, Lines 54-60 and Lines 38-42 and Column 20, Lines 14-18 ("a plurality of data structures,

wherein each of the plurality of data structures is associated with a computer within the plurality of computers, wherein the plurality of computers periodically update the data structures to reflect membership in the clustered computer system.")



Thus, the rejection made is proper.

#### Conclusion

11. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Yemane Gerezgiher whose telephone number is (571) 272-3927. The examiner can normally be reached on Monday- Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful. The examiner's supervisor, William Cuchlinski, can be reached at (571) 272-3925.

Yemane M. Gerezgiher  
AU 2144



WILLIAM A. CUCHLINSKI, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600